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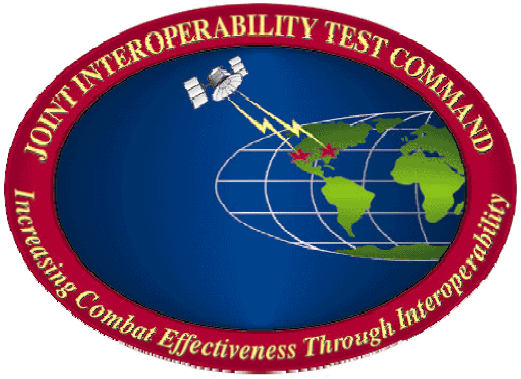
Defense Information Systems Agency
Department of Defense

Modeling and Simulation (M&S) NETWORK WARFARE SIMULATOR

NETWARS



Joint Interoperability Test Command

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Increasing Combat Effectiveness
Through Interoperability

Joint Interoperability Test Command

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INTRODUCTION

Modeling & Simulation (M&S) Lab

The Joint Interoperability Test Command's (JITC's) M&S laboratory provides a broad range of M&S capabilities, to include measuring and assessing the performance and operation of National Security Systems, and information flow through military communications networks, network and interface design, and communication networks, devices, protocols, and applications research and development. The M&S lab is fully operated with reimbursable funds.

CAPABILITIES

Network Warfare Simulator (NETWARS)

NETWARS is developed by the Joint Staff J-6 Command, Control, Communications, & Computers (C4) Systems Directorate, in partnership with the Defense Information Systems Agency (DISA) TS3 Command, Control, Communications, Computers, and Intelligence Directorate to simulate the performance of defense communications systems at the operational level and below.

NETWARS provides M&S capabilities for measuring and assessing the information flow and performance of military communications networks (strategic, tactical, and operational). Output from NETWARS can provide considerable utility in determining which communications systems might be overloaded during selected times in a particular scenario and could assist with making prudent acquisition planning decisions. Without the realistic simulations provided by NETWARS, the risks of a catastrophic failure of existing and contingency communications networks are largely unknown. By simulating the effects of various situations and stresses on the planned networks that will support warfighter operations, NETWARS can quantify these risks and allow C4 deficiencies to be identified before commitment of forces to any regional conflict or situation.

NETWARS is the J6 M&S tool under development that will allow the Department of Defense (DoD) to identify connectivity and throughput problems for Joint Task Force level operations, without entering actual mission or battlefield conditions. JITC uses NETWARS to evaluate the current and proposed changes to the Joint Tactical Data Link (JTDL) network, model Joint Distributed Engineering Plant (JDEP) events, and in the design and execution of new initiatives such as the Interoperability Test & Evaluation (T&E) Capability (InterTEC) and the DoD Interoperability Communications Exercise (DICE).

NETWARS can be used to perform:

- Communications Analysis
- Contingency Planning Analysis
- Emerging technology Evaluations
- Network Design
- Network Evaluation
- Capacity Planning
- Statistical Display

Our goal is to be the premier provider of test evaluation, and analysis support to Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance systems acquisition. JITC will strengthen the T&E process by applying M&S technology to: improve product quality and function; reduce technical risk; enhance performance assessments; and make comprehensive T&E more affordable.

The JITC M&S lab tool kit consists of:

- Enterprise Architect for Universal Modeling Language model construction and analysis.
- OPNET™ Modeler for network M&S to design and study networks, devices, protocols, and applications.
- NETWARS for designing, modeling, and analyzing military communications connectivity and throughput.

Systems and Networks modeled in the M&S lab include:

- Communications System Stimulator device Modeling
- Sensor Signal Emulators device modeling
- JTDL Network event modeling
- JDEP event modeling
- Joint Forces Command, Joint National Training Capability, Joint Technical Task modeling
- DICE event modeling
- InterTEC distributed system modeling
- Defense Information System Network—Leading Edge Services
- Defense Research and Engineering Network